

AMENDMENTS TO THE CLAIMS

The following listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (Previously presented): A system for assisting regeneration of a storage/release NO_x trap integrated in an exhaust line of a motor vehicle diesel engine, the system comprising gas admission means for admitting gas into the engine, means for injecting fuel into the cylinders thereof in the form of at least pilot and main injections, and means for controlling at least one of (i) said gas admission means and (ii) said fuel injection means for periodically switching the engine between a lean mixture standard operating mode in which NO_x is stored in the trap and a rich mixture regeneration operating mode in which NO_x is released from the trap and the trap is regenerated, wherein in a rich-mixture regeneration operating mode, the injection means are suitable for implementing at least two pilot injections triggered in a crankshaft angle range from approximately 50° to approximately 5° ahead of the top dead centre point of the cylinder concerned and the main injection is triggered in an undercalibrated range up to a crankshaft angle of approximately 35° after the top dead centre point, wherein the control means are adapted to control at least one of (i) the gas admission means and (ii) the fuel injection means in accordance with the standard and regeneration modes of operation for engine loads below a predetermined threshold value.

2. (Previously presented): A system according to claim 1, wherein the control means are

adapted to control the gas admission means to reduce the quantity of gas admitted into the engine when said engine is in its regeneration mode of operation.

3. (Canceled)

4. (Previously presented): A system according to claim 1, wherein the predetermined load threshold value is defined by a brake mean effective pressure of approximately 3 bars.

5. (Previously presented): A system according to claim 1, wherein the engine is associated with exhaust gas recirculation means for recirculating exhaust gas to its inlet, and the control means are adapted to regulate the operation of the recirculation means during operation of the engine with a rich mixture.

6. (Canceled)

7. (Previously presented): A system according to claim 1, wherein the control means are adapted to control at least one of (i) the gas admission means and (ii) the injection means to operate the engine with a lean mixture for approximately 60 seconds and a rich mixture for approximately 2 seconds.

8. (New): A system according to claim 2, wherein the predetermined load threshold

value is defined by a brake mean effective pressure of approximately 3 bars.

9. (New): A system according to claim 2, wherein the engine is associated with exhaust gas recirculation means for recirculating exhaust gas to its inlet, and the control means are adapted to regulate the operation of the recirculation means during operation of the engine with a rich mixture.

10. (New): A system according to claim 4, wherein the engine is associated with exhaust gas recirculation means for recirculating exhaust gas to its inlet, and the control means are adapted to regulate the operation of the recirculation means during operation of the engine with a rich mixture.

11. (New): A system according to claim 8, wherein the engine is associated with exhaust gas recirculation means for recirculating exhaust gas to its inlet, and the control means are adapted to regulate the operation of the recirculation means during operation of the engine with a rich mixture.

12. (New): A system according to claim 2, wherein the control means are adapted to control at least one of (i) the gas admission means and (ii) the injection means to operate the engine with a lean mixture for approximately 60 seconds and a rich mixture for approximately 2 seconds.

13. (New): A system according to claim 4, wherein the control means are adapted to control at least one of (i) the gas admission means and (ii) the injection means to operate the engine with a lean mixture for approximately 60 seconds and a rich mixture for approximately 2 seconds.

14. (New): A system according to claim 5, wherein the control means are adapted to control at least one of (i) the gas admission means and (ii) the injection means to operate the engine with a lean mixture for approximately 60 seconds and a rich mixture for approximately 2 seconds.

15. (New): A system according to claim 8, wherein the control means are adapted to control at least one of (i) the gas admission means and (ii) the injection means to operate the engine with a lean mixture for approximately 60 seconds and a rich mixture for approximately 2 seconds.

16. (New): A system according to claim 9, wherein the control means are adapted to control at least one of (i) the gas admission means and (ii) the injection means to operate the engine with a lean mixture for approximately 60 seconds and a rich mixture for approximately 2 seconds.

17. (New): A system according to claim 10, wherein the control means are adapted to control at least one of (i) the gas admission means and (ii) the injection means to operate the engine with a lean mixture for approximately 60 seconds and a rich mixture for approximately 2 seconds.

18. (New): A system according to claim 11, wherein the control means are adapted to control at least one of (i) the gas admission means and (ii) the injection means to operate the engine with a lean mixture for approximately 60 seconds and a rich mixture for approximately 2 seconds.

19. (New): A system according to claim 1, wherein, in the rich-mixture regeneration operating mode, the injection means are suitable for implementing a series of injections consisting of (i) a plurality of pilot injections comprising at least two pilot injections triggered in a crankshaft angle range from approximately 50° to approximately 5° ahead of the top dead centre point of the cylinder concerned and (ii) a single main injection triggered in an undercalibrated range up to a crankshaft angle of approximately 35° after the top dead centre point.